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A

SHORT NARRATIVE

OF THE

GENIUS, *LIFE*, and *WORKS*,

OF THE LATE

Mr. JOHN SMEATON,

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CIVIL ENGINEER, F.R.S.

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The following little tract was sent to the Printer
of the DIARY, and introduced by the
subsequent Letter

To Mr. WOODFALL.

SIR,

HAVING seen several short accounts of the knowledge and abilities of the late Mr. John Smeaton, evidently drawn from the few works he has published, and without giving any general idea of his character or life; and having lived in a close intimate friendship with him for above fifty years, I find myself impelled, by the respect I bear to his memory, to attempt a short narrative of his genius, life, and character; and as such, submit it to his friends and the public. My other employments will not allow me time to look into an abundance of his letters I have by me; as I therefore write from memory, I hope I shall be excused, if I err in point of time or dates. His Executors intend to publish his life, when the materials and his papers are properly arranged.

I am, Sir, with great respect,
Your humble servant,

JOHN HOLMES.

Strand, March, 1793.



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Mr. JOHN SMEATON,
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Mr. John Smeaton was born the 28th of May, 1724, old style, at Austhorpe, near Leeds, in a house built by his Grand-father, and where his family have resided ever since.

The strength of his understanding and the originality of his genius, appeared at an early age; his play-things were not the play-things of children, but the tools men work with; and he appeared to have greater entertainment in seeing the men in the neighbourhood work, and asking them questions, than in any thing else. One day he was seen (to the distress of his family) on the top of his Father's Barn, fixing up something like a Windmill; another time, he attended some men fixing a pump at a
B 3 neighbouring

neighbouring Village, and observing them cut off a piece of bored pipe, he was so lucky as to procure it, and he actually made with it a working pump that raised water. These anecdotes refer to circumstances that happened while he was in petticoats, and most likely before he attained his 6th year.

About his 14th or 15th year, he had made for himself an Engine to turn rose work, and made several presents to his friends of boxes in ivory and wood, turned by him in that way.

In the year 1742, I spent a month at his Father's house, and being intended myself for a mechanical employment, and a few years younger than he was, I could not but view his works with astonishment ; he forged his iron and steel, and melted his metal ; he had tools of every sort, for working in wood, ivory, and metals. He had made a Lathe, by which he had cut a perpetual screw in brass, a thing little known at that day, and which I believe was the invention of Mr. Henry Hindley, of York, with whom I served my Apprenticeship. Mr. Hindley was a man of the most communicative disposition, a great lover of Mechanics, and of the most fertile genius ; Mr. Smeaton soon became acquainted with him, and they spent many a night at Mr. Hindley's house till day light, conversing on those subjects.

Thus

Thus had Mr. Smeaton, by the strength of his genius, and indefatigable industry, acquired, at the age of 18, an extensive set of tools, and the art of working in most of the mechanical trades, without the assistance of any master, and which he continued to do a part of every day when at the place where his tools were, and few could work better.

Mr. Smeaton's Father was an Attorney, and desirous of bringing him up to the same profession; Mr. Smeaton therefore came up to London in 1742, and attended the courts in Westminster Hall; but finding (as his constant expression was) that the law did not suit *the bent of his genius*, he wrote a strong memorial to his Father on that subject, whose good sense from that moment left Mr. Smeaton to pursue the bent of his genius in his own way.

Early in 1750, I came up to Mr. Smeaton's lodgings in Great Turnstile; he was then about commencing Mathematical Instrument Maker, and soon became acquainted with most of the ingenious men of that time.

In 1751, he began a course of experiments to try a machine of his invention to measure a ship's way at sea, and also made two voyages in company with Dr. Knight to try it, and a compass of his own invention and making, and which was made magnetic by Dr. Knight's artificial magnets; the last

of these was in the Fortune sloop of war, commanded at that time by Captain Alexander Campbell.

In 1753, he was elected Member of the Royal Society; the number of papers published in their Transactions will shew the universality of his genius and knowledge. In 1759, he was honoured by an unanimous vote with their gold medal, for his paper entitled “ *An Experimental Enquiry concerning the “ natural powers of water and wind to turn mills, and “ other machines depending on a circular motion.”*”

This paper, he says, was the result of experiments made on working models in the year 1752 and 1753, but not communicated to the society till 1759, before which time he had an opportunity of putting the effect of these experiments into real practice, in a variety of cases, and for various purposes, so as to assure the society he had found them to answer.

Here we see Mr. Smeaton in his 27th and 28th year make models and experiments therewith, by which the powers of wind and water are found to be able to do more, by at least one third, than it was known they could do before: this improvement, without any other, shews the value of his life to this country; to enable mills, and all other circular motions depending on water and wind, to do at least one third more business than they did before, is to this country (greatly depending on its manufactures) a benefit beyond any calculation I can make. It must be immensely great.

But

But here I find, by pursuing the above, I have omitted an anecdote, that shews his great thirst after knowledge : in the year 1754, he made a voyage to Holland, and by walking on foot or travelling in the *transcootes*, he got acquainted with most of the works of art there, and in the low countries.

In December 1755, the Edystone Lighthouse was burnt down; Mr. Weston, the chief proprietor, and the others, being desirous of rebuilding it in the most substantial manner, enquired of the Earl of Macclesfield (then President of the Royal Society) who he thought the most proper person to rebuild it; his Lordship recommended Mr. Smeaton.

Mr. Smeaton undertook the work, and completed it in the summer of 1759; of this, Mr. Smeaton gives an ample description, in the volume he published in 1791; that edition has been some time sold, and a second is now in the press, under the revivisal of his much-esteemed friend, Mr. Aubert, F. R. S. and Governor of the London Assurance Corporation. Of this work, I shall only say it appears to me, in a great measure, a history of four years of his life, wherein the originality of his genius is fully displayed, as also his great alacrity, industry, and perseverance.

Though Mr. Smeaton completed the building of the Edystone Lighthouse in 1759 (a work that does him so much credit) yet it appears he did not soon get into full business as a Civil Engineer ;

Engineer; for in 1764, while in Yorkshire, he offered himself a candidate for one of the receivers of the Derwentwater Estate; and on the 31st of December in that year, he was appointed, at a full Board of Greenwich Hospital, in a manner highly flattering to himself; when two other persons, strongly recommended and powerfully supported, were candidates for the employment; in this appointment he was very happy, by the assistance and abilities of his partner Mr. Walton, one of the present receivers, who taking upon himself the management and accounts, left Mr Smeaton leisure and opportunity to exert his abilities on public works, as well as to make many improvements in the Mills, and in the estates of Greenwich Hospital. By the year 1775, he had so much business, as a Civil Engineer, that he wished to resign this appointment, and would have done it then, had not his friends, the late Mr. Stuart, the Hospital Surveyor, and Mr. Ibbetson, their Secretary, prevailed upon him to continue in the office about two years longer.

Mr. Smeaton having now got into full business as a Civil Engineer, it is not my intention, nor is it in my power, to enumerate the variety of concerns he was engaged in; I shall touch upon some of the principal ones slightly. He made the River Calder navigable; a work that required great skill and judgment, owing to the very impetuous floods in that
River

River ; he planned and attended the execution of the great Canal in Scotland, for conveying the trade of the country, either to the Atlantic or German Ocean; and having brought it, I believe, to the place originally intended, he declined a handsome yearly salary, in order that he might attend to the multiplicity of his other business.

On the opening of the great Arch at London-bridge, the excavation around and under the sterlings was so considerable, that the bridge was thought to be in great danger of falling. He was then in Yorkshire, and was sent for by express, and arrived with the utmost dispatch ; I think it was on a Saturday morning, when the apprehensions of the Bridge falling were so general, that few would pass over or under it. He applied himself immediately to examine it, and to sound about the sterlings as minutely as he could, and the committee being called together, adopted his advice, which was, to repurchase the stones that had been taken from the middle Pier, then lying in Moorfields, and to throw them into the river to guard the sterlings.† Nothing shews

† This method of stopping the impetuous ravages of water, he had practised before with success, on the River Calder; on my calling on him in the neighbourhood of Wakefield, he shewed me the effects of a great flood, which had made a considerable passage over the land; this he stopped at the bank of the River, by throwing in a quantity of large ruff stones, which with the sand and other materials, washed down by the river, filling up their interstices, had become a barrier to keep the river in its usual course.

the apprehensions of the bridge falling, more than the alacrity with which his advice was pursued ; the stones were re-purchased that day, Horses, Carts, and Barges were got ready, and they began the work on Sunday morning. Thus Mr. Smeaton, in all human probability, saved London-bridge from falling, and secured it till more effectual methods could be taken.

In the summer of 1771, when, through the multiplicity of his business, he was travelling in Ireland, Scotland, and England, I concluded a joint purchase for himself and me, of the works for supplying Deptford and Greenwich with water, which being an extensive undertaking, we saw from the first would require much pains and address to manage; and soon after, by papers put into our hands, we found that for a long series of years it had been a losing pursuit to all former proprietors ; this, therefore, called forth all his skill, and our joint address in the management.---His language, either in speaking or writing, was so strong and perspicuous, that there was no misunderstanding his meaning, and I had that confidence in his abilities, as never to consider any plan of improvement which he proposed, but only to see it executed with scrupulous exactness ; at the same time, he was so open to reason in all matters, that during a constant communication of our opinions for upwards of twenty years, after we had laid them fully before each other, we always agreed, *never had the slightest difference*, and brought
this

this undertaking to be of general use to those it was intended for, and moderately beneficial to ourselves

The vast variety of mills Mr. Smeaton constructed, so greatly to the satisfaction and advantage of the owners, will shew the great use he made of his experiments in 1752 and 1753; and indeed he scarcely trusted to theory in any case where he could have an opportunity to investigate it by experiment; and for this he built a Steam Engine at Austhorpe, and made experiments thereon purposely to ascertain the power of Newcomen's Steam Engine, which he improved and brought to a far greater degree of certainty, both in its construction and powers, than it was before.

Mr. Smeaton, during many years of his life, was a constant attendant on Parliament, his opinion being continually called for; and here his strength of judgment and perspicuity of expression had its full display; it was his constant custom, when applied to to plan or support any measure, to make himself fully acquainted with it, and see its merits before he would be engaged in it; by this caution, added to the clearness of his description, and the integrity of his heart, he seldom failed having the Bill he supported carried into an Act of Parliament. No one was heard with more attention, nor had any one ever more confidence placed in his testimony; in the Courts of law, he had several compliments paid him from
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the bench by Lord Mansfield and others, for the new light he threw on difficult subjects.

About the year 1785, Mr. Smeaton's health began to decline, and he then took the resolution to endeavour to avoid all the business he could, so that he might have leisure to publish an account of his inventions and works, which was certainly the first wish of his heart; for he has often told me, *he thought he could not render so much service to his country, as by doing that.* He got only his account of the Edystone Lighthouse completed, and some preparations to his intended Treatise on Mills, for he could not resist the solicitations of his friends in various works; and Mr. Aubert, whom he greatly loved and respected, being chosen Chairman of Ramsgate Harbour, prevailed upon him to accept the place of Engineer to that harbour, and to their joint efforts, the publick is chiefly indebted for the improvements that have been made there within these few years, which fully appears in a report that Mr. Smeaton gave in to the Board of Trustees in 1791, which they immediately published.

Mr. Smeaton being at Austhorpe, walking in his garden on the 16th of September last, was struck with the palsy, and died the 28th of October. In his illness I had several letters from him, signed with his name, but wrote and signed by another's pen; the diction of them shewed the strength of

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of his mind had not left him.—In one, written the 26th of September, after minutely describing his health and feelings, he says, “ *in consequence of the foregoing, I conclude myself nine tenths dead, and the greatest favour the Almighty can do me (as I think) will be to complete the other part; but as it is likely to be a lingering illness, it is only in his power to say when that is likely to happen.*”

Having given a few traits of the life and works of Mr. Smeaton, chiefly from memory, I shall now briefly sum up his character from my own knowledge.---Mr. Smeaton had a warmth of expression, that might appear to those who did not know him well, to border on harshness; but those more intimately acquainted with him, knew it arose from the intense application of his mind, which was always in the pursuit of truth, or engaged in investigating difficult subjects. He would sometimes break out hastily, when any thing was said that did not tally with his ideas; and he would not give up any thing he argued for, till his mind was convinced by sound reasoning.

In all the social duties of life he was exemplary; he was a most affectionate Husband, a good Father, a warm, zealous, and sincere Friend, always ready to assist those he respected, and often before it was pointed out to him in what way he could serve them. He was a lover and encourager of merit wherever he found

found it; and many men are in a great measure indebted for their present situation to his assistance and advice. As a companion, he was always entertaining and instructive, and none could spend their time in his company without improvement.

As a Civil Engineer, when his works are published, they will do his talents more justice than I can. I have spent many evenings with him in the last twenty years, in a Society of Civil Engineers, which he was one of the first to promote, and where he was always heard with great attention and held in particular esteem. As a man, I always admired and respected him, and his memory will ever be most dear to me.

JOHN HOLMES.

Strand, March, 1793.

P. S. Since writing the above, I perceive I have left unnoticed Mr. Smeaton's improvement of the Air Pump, of the Pyrometer and Hygrometer, and his experiments on many other philosophical matters, which, I trust, will appear when his Life and Works are published.



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